

INTRODUCTION TO POLYNOMIALS:

On page 167, there are 9 definitions. For each definition, the book provides various examples which explain the definition. Please review these definitions and be comfortable with the examples.

ADDITION & SUBTRACTION OF POLYNOMIALS:

*** remember subtraction is addition of the opposite
 *** all addition and subtraction must be done HORIZONTALLY
 *** DO NOT ADD / SUBTRACT VERTICALLY. I WILL NOT GIVE YOU ANY CREDIT FOR YOUR WORK.

Example:

Directions: (a) Add the polynomials. (b) Subtract the second polynomial from the first.

$$2x^2 - 3xy + 5y^3 - 4x^2y - 6x \quad ; \quad 5x^2 - 4x + 6x^2y - 11y^3 - 3y$$

Steps and Answer for (a):

$$(2x^2 - 3xy + 5y^3 - 4x^2y - 6x) + (5x^2 - 4x + 6x^2y - 11y^3 - 3y)$$

After you rewrite the expressions to show you are adding them, you must identify all of the like terms.

$$2x^2 - 3xy + 5y^3 - 4x^2y - 6x + 5x^2 - 4x + 6x^2y - 11y^3 - 3y$$

$$7x^2 - 6y^3 + 2x^2y - 10x - 3xy - 3y$$

Then you need to reorder them so that they are arranged by decreasing degree of x . The variable x is used because it appears before y in the alphabet.

$$\underbrace{2x^2y + 7x^2}_{x^2} - \underbrace{3xy - 10x}_{x^1} - \underbrace{6y^3 - 3y}_{x^0}$$

* $2x^2y$ comes before $7x^2$ b/c when they both have x^2 , we have to compare the y 's. And, y^1 comes before y^0 ... think:

$$2x^2y^1 + 7x^2y^0$$

* $-3xy$ comes before $-10x$ b/c they both have x^1 , so we must compare y 's. And y^1 comes before y^0 , think:

$$-3xy^1 - 10xy^0$$

Why does $-6y^3$ come before $-3y$?

Think of them as

$$-6x^0y^3 - 3x^0y^1$$

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Page 1 of 2